National Aeronautics and Space Administration

NASA, Exploring Sustainability for Life

Panel Presentation

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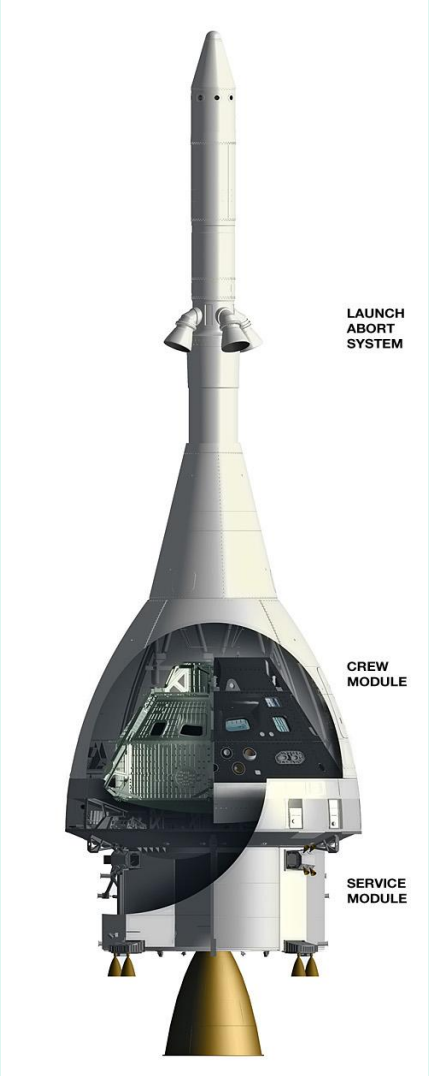
Outline

- Background and Challenges
- Sustainability Principles
- Sustainability Requirements
- Current Scorecard
- Strategic Life Cycle Management



Background

NASA is about inspiring people
to seek out answers to questions
concerning
the universe and our world

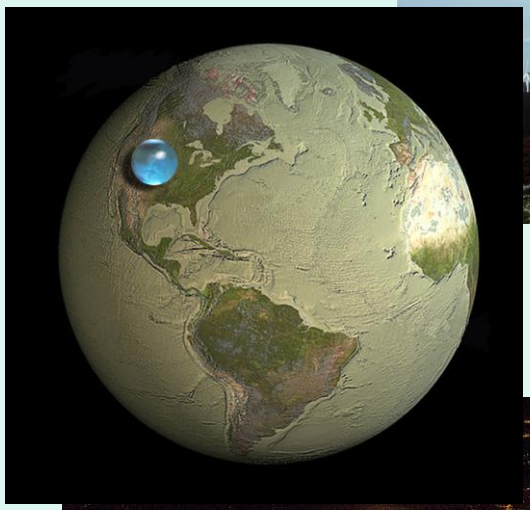
U. S. National Space Policy Goals

- Energize competitive domestic industries
- Expand international cooperation
- Strengthen stability in space
- Increase assurance and resilience of mission-essential functions
- Pursue human and robotic initiatives
- Improve space-based Earth and solar observation

"NASA has a key role in achieving the goals defined in the new policy. We are committed to working with other agencies, industry, and international partners to achieve national goals in exploration - human and robotic - and technology development that will ensure a robust future for the U.S. and our friends around the world." NASA Administrator Charles Bolden, June 28, 2010

Global Challenges

- **Energy supply and Resilience**
- **Environmental Risks to Mission**
  - Air Contamination and Green House Gases
  - Toxic Material Usage
  - Climate Change
  - Natural Resource System Degradation
- **Health and Welfare**
- **Water Resource Quality and Availability**
- **International Security**
- **Economic Wellbeing**



Sustainability Principles

NASA Draft Principles of Sustainability:

Principle 1: Maximize effectiveness of space systems and supporting assets, supply chain and logistics security, and sustainment of earth support system capability.

Principle 2: Increase resilience of earth-based space support systems through terrestrial threat analysis, increased resource efficiency and security, and adaptation and risk mitigation planning and execution.

Principle 3: Reduce risk to mission from supply chain, economic, social, ecological factors and other terrestrial factors through life-cycle management of space systems, assets and materials.

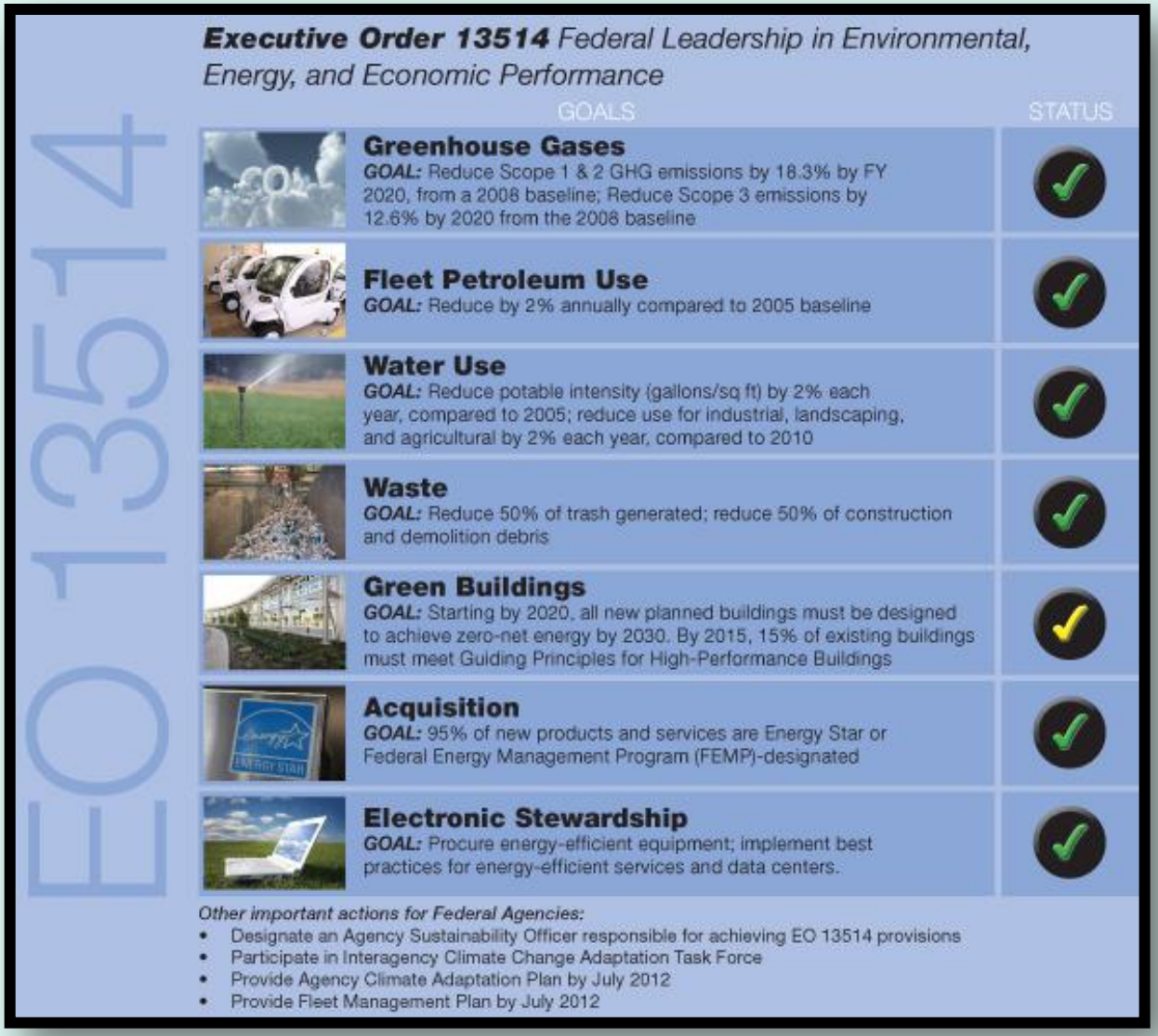
Principle 4: Optimize Mission contribution to human health, environmental stewardship and economic and social equity.

Sustainability Requirements

Executive Order 13514:

Federal Leadership in Environmental, Energy and Economic Performance

Sustainability Scorecard



Sustainability, SLCM, Resiliency

Sustainability

Aims to maintain the world in balance

Strategic Life Cycle Management

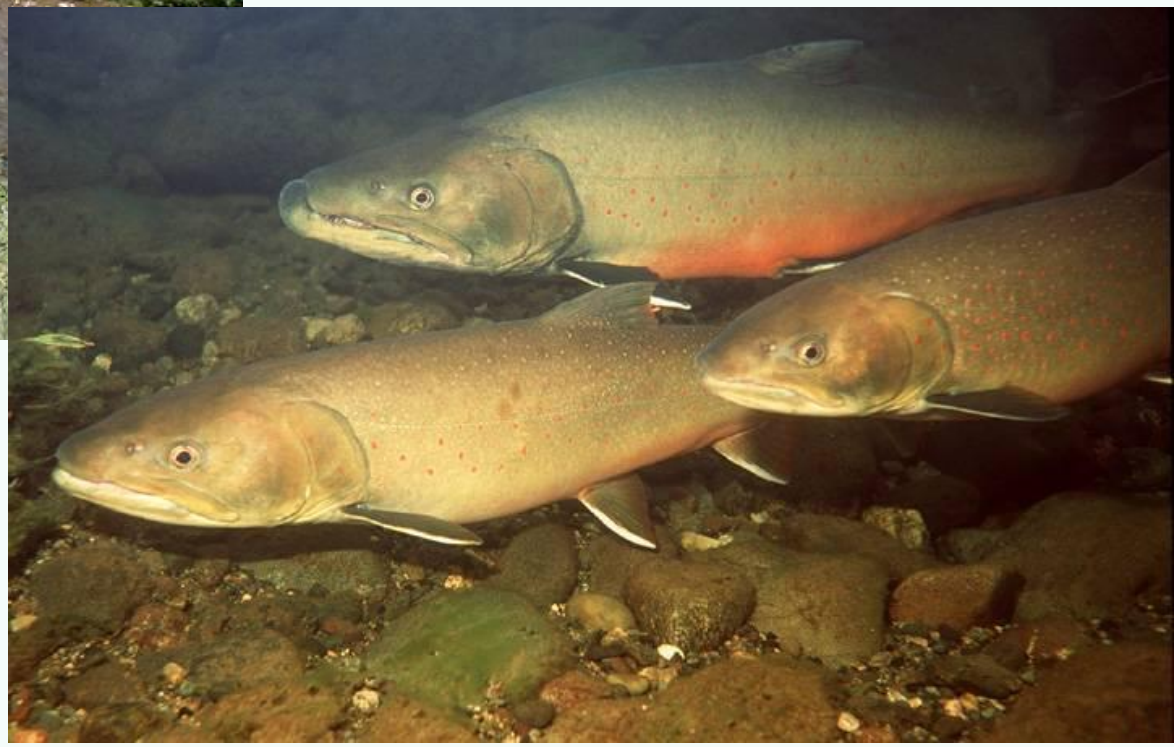
Promotes sustainability and resilience at all stages of space system life cycle

Resiliency

Helps systems adapt to shocks in an imbalanced world

Sustainability and Resilience

Both Sustainability and Resiliency Must Be Managed



Life Cycle Management Ties the Two Together

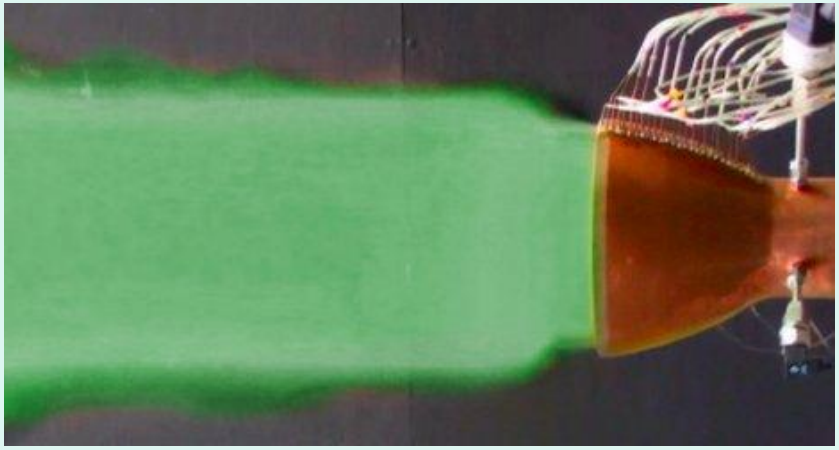
Ref: http://www.fs.fed.us/rm/publications/titles/rmrs_gtr.html

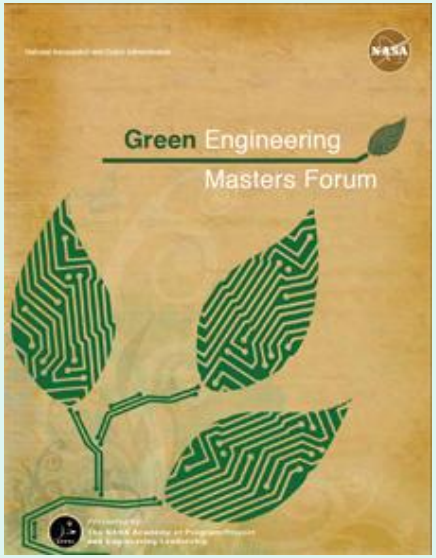
Need for Resilience

Strategic Life Cycle Management Purpose

SLCM Purpose Summary:

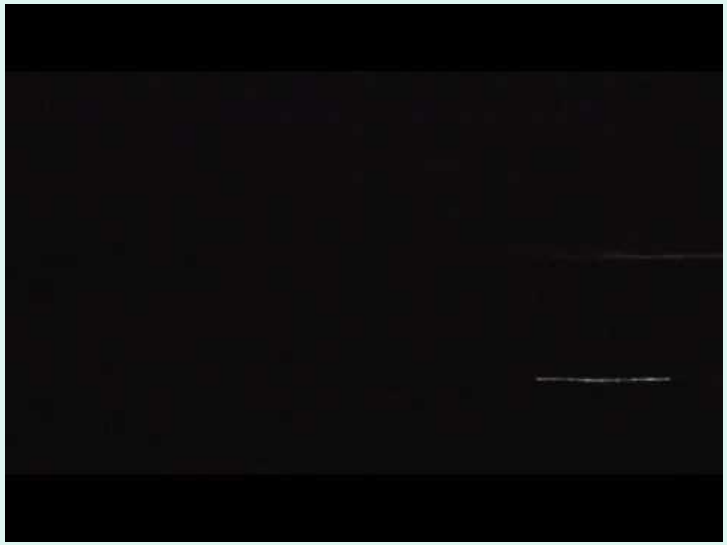
- Reduce spacecraft weight
- Reduce risk to mission
- Increase space system performance





Strategic Terrestrial Asset Assurance and Resilience (STAAR)

NASA will use Strategic Life Cycle Management to engineer resilient space systems, promote sustainability, and protect strategic terrestrial space system assets



Actions to Achieve STAAR

- International cooperation and partnerships
- Promote shared understanding space system materials and processes
- Bring people together; scientist, engineers, academics, students to explore means to achieve results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Questions?